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NAS WHITING FIELD  
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LETTER AND U S EPA REGION IV COMMENTS TO REMEDIAL INVESTIGATION REPORT  
SITE 2 NORTHWEST OPEN DISPOSAL AREA NAS WHITING FIELD FL  
3/5/1998  
U S EPA REGION IV



UNITED STATES ENVIRONMENTAL PROTECTION

REGION 4  
ATLANTA FEDERAL CENTER  
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4WD-FFB

Ms. Linda Martin  
Southern Division  
Naval Facilities Engineering Command  
P.O. Box 190010  
2155 Eagle Drive  
North Charleston, South Carolina 29419-9010

SUBJ: RI Report for Site 2

Dear Ms. Martin:

The United States Environmental Protection Agency (EPA) has received and reviewed the Remedial Investigation (RI) Report for Site 2, Northwest Open Disposal Area, at NAS Whiting Field, dated December 1997. Enclosed are EPA's comments based on this review.

If you should have any questions or comments, please contact me at (404) 562-8555.

Sincerely,

Craig A. Benedikt  
Remedial Project Manager  
Federal Facilities Branch

Enclosure

cc: Jim Cason, FDEP

**EPA Review Comments Report for  
Remedial Investigation Report for Site 2, Northwest Open Disposal Area  
December 1997**

**GENERAL COMMENTS**

In general, the RI report primarily focuses on whether State of Florida standards have been exceeded while neglecting federal standards. A comparison to federal standards should be accomplished and addressed in the text of the RI report at each occurrence where a similar comparison to State standards takes place.

**SPECIFIC COMMENTS**

1. **Page iv, Bullet No. 8.** The Executive Summary presents information on the results of Central Tendency risk exposures meeting the Florida risk criteria of  $1 \times 10^{-6}$ . However, the USEPA Region IV does not accept Central Tendency evaluations except for information purposes for risk managers. Therefore, the results of the Central Tendency evaluations should not be considered in the RI Report when the results are used as decision criteria.
2. **Page v, Bullet No. 11.** The Executive Summary indicates that vanadium concentrations were within the range found in the eastern United States; however, a more valid comparison would be to relate vanadium concentrations to facility specific background concentrations.
3. **Page xii.** The abbreviation **CPC** should be changed to **COPC** to reflect the standard abbreviation for referring to chemicals of potential concern.
4. **Page 1-4, Section 1.4, First Paragraph.** The RI report is organized into ten chapters, not nine as reported in the text.
5. **Page 3-1, Section 3.1, Second Paragraph.** The reference to the "Phase I" soil sample (2-SB01) in the first sentence needs to be changed to "Phase II." The Phase I investigation was completed in 1992 and consisted of one groundwater sample.
6. **Page 3-1, Section 3.1, Second Paragraph.** The text states that soil sample 2-SB01 "was biased based on the observation of the surface conditions at the site." There is no further discussion to explain this observation. Therefore, a more detailed explanation for selecting the sample location should be provide in order to support this statement.
7. **Page 5-8, Eighth Paragraph.** Reference is made to the "sand and gravel aquifer" but a geologic cross-section of the area has not been included. A proper assessment of the hydrogeology for the aquifer system should include a geologic cross-section and a topographic map of the area.
8. **Page 5-15, Section 5.3, Seventh Paragraph.** The text states that arsenic concentrations in surface soil samples exceed Federal and State industrial soil clean up goals. According to

the data presented in Table 5.8, the arsenic concentrations also exceed the Federal and State residential soil cleanup goals. The RI Report needs to be corrected.

9. **Page 5-27, Section 5.5.2, Forth Paragraph.** The reference to Table 5-11 needs to be changed to Table 5-12.
10. **Page 5-32, Table 5-13.** The title for Table 5-13 should be changed to indicate that the analytical data evaluates only data collected from Phase IIB.
11. **Page 5-31, Second Paragraph.** The reference to Table 5-7 needs to be changed to 5-13.
12. **Page 5-31, Second Paragraph.** The text states that the 1993 Phase IIA groundwater samples are not considered to be representative of groundwater conditions due to sample turbidity and, therefore, are not presented in the RI Report. The only groundwater data evaluated is a single round of samples collected from three monitor wells in 1996 during the Phase IIB investigation. Since only the 1996 Phase IIB groundwater data is evaluated, it may be insufficient to make a decision on the quality of the groundwater for Site 2. Typically, four quarters of groundwater samples are collected to evaluate the variability of groundwater conditions. To adequately access the groundwater conditions at Site 2, additional groundwater samples are recommended to support the results of the 1996 Phase IIB groundwater data and to address potential variations in groundwater contaminant concentrations that may occur over time. The need for additional groundwater samples can be addressed during future sampling events for the groundwater operable unit.
13. **Page 5-34, Second Paragraph.** The RI Report compares groundwater contaminant concentrations at Site 2 with upgradient groundwater analytical data from Site 1, the Northwest Disposal Area. The upgradient groundwater data is not presented in the RI Report, but is referenced in an earlier report for Site 1. The RI Report should be a stand-alone document with all pertinent data provided. Therefore, the upgradient groundwater sample data from the Site 1 report should be included in the RI Report for comparison.
14. **Page 5-34, Forth Paragraph.** The text states that groundwater sample 02G00101F is a filtered sample. To assist in the review of the analytical data, Table 5-12 (Page 5-29), presented earlier in the RI Report, should also identify groundwater sample data for 02G00101F as being obtained from a filtered sample.
15. **Page 6-2, Section 6-2, First Paragraph.** In the first paragraph the text states that human health chemicals of potential concern (HHCPCs) were selected using methods described in the GIR. However, the second paragraph states HHCPCs were selected using USEPA Region IV criteria. This discrepancy should be corrected.
16. **Page 9-1, Section 9.1.** The text should state that risk was within EPA's range of  $1 \times 10^{-4}$  to  $1 \times 10^{-6}$  as well as FDEP's target level of  $1 \times 10^{-6}$ .
17. **Page 9-2, First Bullet.** The reference to Central Tendency should be removed. See specific Comment No. 1.

The following comments were generated during the risk review of the Site 2 RI Report:

## GENERAL COMMENTS

In general, the ERA conclusions are consistent with what would be anticipated based on the nature and extent of contamination presented in the ERA. However, the ERA needs to be strengthened in order to sufficiently justify the recommendation for no further action. Specific items for revision are discussed in the specific comments.

## SPECIFIC COMMENTS

1. **Figure 6-1, Page 6-11.** This figure presents the complete exposure pathways for human receptors at Site 2. Surface soil and subsurface soil are not distinguished from each other. The receptors identified in the figure are not assessed for exposure to both subsurface and surface soil in this RI Report. To distinguish which receptors are assessed for which media, subsurface and surface soil should be shown separately on the diagram.
2. **Section 6.3.4, Page 6-14.** This section discusses the derivation of exposure point concentrations. The methodology behind the derivation of exposure point concentrations is not provided in this section, or elsewhere in the RI Report. Instead, the General Information Report (GIR) is provided as a reference for this information. The RI Report should be a stand-alone document. Therefore, the methodology behind the derivation of exposure point concentrations should be briefly summarized in this section.
3. **Section 6.4, Page 6-14.** This section discusses the toxicity assessment. The methodology behind the toxicity assessment is not provided in this section, or elsewhere in the RI Report. Instead, the GIR is provided as a reference for this information. The RI Report should be a stand-alone document. Therefore, the methodology behind the toxicity assessment should be summarized in this section.
4. **Section 6-4, Page 6-17.** The text states, "Appendix C to this report contains brief toxicity summaries for HHCPs (human health contaminants of potential concern) identified in surface soil, subsurface soil, and groundwater." However, no HHCPs were identified in subsurface soils. The text should be amended accordingly. Secondly, the toxicity summaries provided in Appendix C do not include the metal thallium, which was identified as a HHCP in groundwater. Thallium is one of the more toxic metals, and toxicity information should be provided in the Appendix C toxicity summaries.
5. **Figure 6-2, Page 6-22.** The figure presents a graphical representation of the current land use carcinogenic risks for adult and child residents. However, the current residential land use scenario was not evaluated as part of the human health risk assessment. The values represented in the graph do not appear to relate to the future residential scenario risk values. Therefore, it appears that the figure may have been inadvertently carried over from another

investigation, or the figure was erroneously labeled. The figure should be revised to include correct information, or the figure should be deleted if it was included in error.

6. **Figure 7-1, Page 7-4.** The contaminant pathway model inappropriately references Site 18 on the figure and in one of the footnotes. The contaminant pathway model figure should specify Site 2.
7. **Table 7-1, Page 7-6.** Table 7-1 presents very specific assessment endpoints. Several problems exist with the assessment endpoints as stated in this table. First, the terrestrial plant and invertebrate assessment endpoints presented in Table 7-1 are not adequately measured by the measurement endpoints also presented in Table 7-1. In order to assess a "25% decline in biomass of forage materials," one would need to do a series of quantitative vegetative surveys. No quantitative vegetative surveys were performed as part of the ERA. The invertebrate assessment endpoint, a "25% decline in abundance of earthworms," is difficult to measure, and would require field measurements of earthworm populations. However, no attempt to quantify earthworm abundance was made in the ERA. Secondly, the assessment endpoints presented in Table 7-1 are too narrow to fully address the testable hypotheses provided on page 7-5 in Section 7.2.3. The ERA assessment presented in this RI is consistent with the testable hypotheses presented on page 7-5. Therefore, to improve the correspondence between the measurement endpoints and the assessment endpoints and to address the testable hypotheses presented on page 7-5, the terrestrial plant and invertebrate assessment endpoints should be revised to clearly reflect these hypotheses. At a minimum, the "25% decline" needs to be deleted from these assessment endpoints.

The ERA would be strengthened if the wildlife assessment endpoint, presented in Table 7-1, of "survival and maintenance of wildlife populations" was revised to specifically correspond to the two measurement endpoints for wildlife applied in this ERA. If the assessment endpoint was divided into the following two example assessment endpoints there would be better correlation with the testable hypotheses and the method of evaluation used in this ERA: 1) protection of small mammals and birds that forage on soil invertebrates, 2) protection of predators that prey on small mammals. The wildlife assessment endpoint should be revised to better reflect the testable hypotheses.

8. **Table 7-1, Page 7-6.** The examples of measurement endpoints for the wildlife species receptors provided in this table are based on LD<sub>50</sub> values. The Toxicity Reference Values (TRVs) used in this ERA are based on NOAELs. Therefore, it would be more appropriate to provide examples of NOAEL studies as opposed to LD<sub>50</sub> studies in the wildlife measurement endpoint.
9. **Table 7-3, Page 7-13.** This Table provides the equations used to calculate potential chemical exposures for wildlife species. The variable entitled "secondary prey item concentration" needs to be better defined. The equation to derive secondary prey item concentrations is not standard. It is unclear whether the "tissue concentrations of prey items" used in the equation to derive the "secondary prey item concentration" is meant to be the "primary prey item concentration" or another concentration. This point should be clarified

10. **Section 9.1, Page 9-2, third bullet.** The conclusion that "symptoms consistent with vanadium toxicity were not apparent in plants at the site" is not supported in the ERA. A discussion of phytotoxic symptoms related to vanadium toxicity is not provided in the ERA. At a minimum a summary of field observations related to screening for vegetative stress and a summary of vanadium phytotoxic effects are needed to support the conclusion as stated.
11. **Section 9.1, Page 9-2, fourth bullet.** This bullet discusses the interaction of four COPCs in sediment. The site characterization in Section 7.1 states that there are no areas of standing water or hydrophytic vegetation at Site 2. The ERA does not evaluate aquatic ecological receptors nor does it provide data on contaminants detected in sediment or surface waters. Therefore, it is unclear why the conclusions in Section 9.1 state that the COPCs listed "... adsorb readily to sediments..." and that "sediment transport is not likely to occur from Site 2 due to site topography." The statements relating to the interaction of COPCs in sediment, a medium absent from this site, should be deleted.